

## What Is Claimed Is:

1. A method for creating a bond between a wafer and a cap, comprising:
  - providing the wafer, at least one microelectromechanical system arranged on the wafer and a bond frame arranged on the wafer, the bond frame arranged on an outer perimeter of the wafer with respect to the at least one microelectromechanical system, the bond frame having a high absorption coefficient with respect to a wavelength of a laser beam;
  - providing the cap arranged on top of the wafer, the cap having a low absorption coefficient with respect to the wavelength of the laser beam; and
  - projecting the laser beam through the cap, the laser beam impinging on the bond frame, the laser beam heating the bond frame, wherein a portion of the cap adjacent to the bond frame is melted.
2. The method according to claim 1, wherein:
  - the wafer includes a first material;
  - the bond frame includes a second material; and
  - an absorption coefficient of the first material is about equal to an absorption coefficient of the second material.
3. The method according to claim 2, wherein the first material is the same as the second material.
4. The method according to claim 1, wherein the laser beam has a wavelength of about 900 nanometers to 1200 nanometers.
5. The method according to claim 4, wherein the laser beam has a wavelength of about 1100 nanometers.
6. The method according to claim 1, wherein the laser beam is able to pass through the cap with about zero absorption.

- 10692890.030603
7. The method according to claim 6, wherein the cap includes at least one of glass and plastic.
  8. The method according to claim 6, wherein the laser beam is about totally absorbed by the bond frame.
  9. The method according to claim 8, wherein the laser beam impinging on the bond frame causes at least one of a bond frame temperature to increase and a wafer temperature to increase.
  10. The method according to claim 9, wherein:
    - the laser beam impinging on the bond frame causes at least one of the bond frame temperature and the wafer temperature to exceed about 400° Celsius;
    - a heat from at least one of the bond frame and the wafer is transferred to the cap; and
    - a cap temperature exceeds a cap material melting point.
  11. The method according to claim 10, wherein at least one of:
    - the bond frame temperature exceeds a bond frame material melting point; and
    - the wafer temperature exceeds a wafer material melting point.
  12. The method according to claim 11, wherein the laser beam impinging on the bond frame causes at least on of the bond frame temperature and the wafer temperature to exceed about 1200° Celsius, thereby melting at least one of the cap, the wafer, and the bond frame.
  13. The method according to claim 9, wherein the laser has a power in the range of about 1 watts to about 50 watts.

14. The method according to claim 13, wherein the laser is able to heat the wafer to melt the cap with a speed allowing the laser to move at a rate of between about 10 millimeters per second and about 1000 millimeters per second.
15. The method according to claim 1, wherein the laser beam has a cross-sectional diameter in the range of about 2 micrometers to about 20 micrometers.
16. The method according to claim 15, wherein the laser beam causes the wafer to heat up in a localized area equal to about the size of a cross section of the laser beam.
17. The method according to claim 1, further comprising projecting a second laser beam through the cap, the second laser beam impinging on the bond frame, the second laser beam heating the bond frame.
18. The method according to claim 1, wherein:
  - the at least one microelectromechanical system includes a channel;
  - the bond frame includes a sidewall, the sidewall adjacent to the channel;
  - the laser beam impinges on the bond frame in a portion of the sidewall adjacent to the cap, the laser beam heating the sidewall; and
  - an interface between the sidewall and the cap is filled when the cap melts.
19. A device, comprising:
  - a wafer;
  - at least one microelectromechanical system arranged on the wafer;
  - a bond frame arranged on the wafer; and
  - a cap bonded to the bond frame by a laser beam projected through the cap, the laser beam impinging on the bond frame, the laser beam heating the bond frame, a heat from the bond frame melting the cap, the cap solidifying to form a bond with the bond frame.
20. The device according to claim 19, wherein the wafer includes silicon.

21. The device according to claim 19, wherein the at least one microelectromechanical system includes silicon.
22. The device according to claim 19, wherein the bond frame includes silicon.
23. The device according to claim 19, wherein the cap includes at least one of glass and plastic.
24. The device according to claim 19, wherein:
  - the wafer includes a first material;
  - the bond frame includes a second material; and
  - an absorption coefficient of the first material is about equal to an absorption coefficient of the second material.
25. The device according to claim 19, wherein the first material is the same as the second material.
26. The device according to claim 19, wherein:
  - the at least one microelectromechanical system includes a channel;
  - the bond frame includes a sidewall, the sidewall adjacent to the channel;
  - the laser beam impinges on the bond frame in a portion of the sidewall adjacent to the cap, the laser beam heating the sidewall; and
  - an interface between the sidewall and the cap is filled when at least one of the cap, the wafer, and the bond frame melts.
27. A system for bonding a wafer to a cap, comprising:
  - a holder, the holder applying a normal force to the wafer and the cap; and
  - a laser, the laser directed at the holder, the laser projecting a laser beam at a frequency that is able to pass through the holder with about zero absorption;

wherein the laser beam is able to pass through the cap and impinge on the wafer thereby heating the wafer and causing the cap to bond to the wafer.

28. The system according to claim 27, further comprising an hermetically sealed chamber, wherein the laser beam is able to pass through the hermetically sealed chamber with about zero absorption.
29. The system according to claim 28, wherein the hermetically sealed chamber is able to produce a vacuum.
30. The system according to claim 28, wherein the hermetically sealed chamber is able to be filled with a specified gas at a specified pressure.
31. The system according to claim 28, wherein the hermetically sealed chamber is integrated with the holder.
32. The system according to claim 27, further comprising an x-y table able to move the holder in an x-y plane, the x-y plane about normal to the direction of the laser beam.
33. The system according to claim 27, wherein the laser beam has a wavelength of about 900 nanometers to 1200 nanometers.
34. The system according to claim 33, wherein the laser beam has a wavelength of about 1100 nanometers.
35. The system according to claim 27, wherein:
  - the laser beam impinging on the wafer causes a wafer temperature to exceed about 400° Celsius;
  - a heat from the wafer is transferred to the cap; and
  - a cap temperature exceeds a melting point of a cap material.

- 1092307